

REMARKS:

Claims 36-55 are pending in the application. Claims 35 and 46 are amended. Applicants' arguments presented January 22, 2009, explaining that Szymkowicz is not prior art, are incorporated herein by reference. Applicants further request reconsideration and allowance in view of the following remarks.

The Examiner rejects various claims on obviousness grounds based on Aine, U.S. 3,903,694; Szymkowicz, U.S. 6,915,629; and Casey, U.S. 5,661,973. As explained previously and noted again above, Szymkowicz is not prior art. With respect to the other two references, the Examiner's attention is drawn to the following.

The claimed invention relates to an improved catalyst system for vehicle exhausts wherein associated engines are operating with lean mixtures, namely, with an excess of oxygen, susceptible to giving rise to increased proportions of nitrogen oxides (NO_x). In contradistinction, both Aine and Casey are concerned with rich mixtures that have excess unburned hydrocarbons (HC) present in their exhaust gases which need to be handled. Thus, Aine and Casey do not disclose a type of structure specifically effective at passing a NO_x gaseous component. Thus, Applicants submit that a person of ordinary skill in the art would not have been inclined to combine their teachings; in contradistinction, the Examiner argues that a person skilled in the art could combine the teachings of Aine and Casey retrospectively with prior knowledge of the claimed invention to arrive at the claimed invention. Applicants submit that this is completely untenable when the specific details of the disclosure in the references are more closely and properly considered.

The separation unit (22) according to the claimed invention is based upon a configuration of inner walls (page 15 of the application) in conjunction with which a reducing agent is circulated. This arrangement is quite different from the disclosure in Aine, wherein a membrane material is employed having differential gas permeability characteristics. Moreover, Casey is concerned with a filter for selectively recovering hydrocarbons for recirculation to the engine. Whereas a person skilled in the art would be aware that hydrocarbons can be returned to an engine for recombustion, the notion of recirculating NO_x would superficially seem to a person of

ordinary skill in the art to be a retrograde step and unlikely to work, namely, one that would make the NO_x problem worse. Thus, the Examiner is, in Applicants' view, using an impermissible amount of hindsight in asserting that a person ordinarily skilled in the art would be motivated to combine the teachings of Aine and Casey to arrive at the claimed invention. Applicants submit that such a combination would superficially seem unlikely to work and would potentially be expected to make NO_x problems worse, especially in the lean-burn scenario pertaining to Applicants' invention. Applicants therefore submit that the claimed invention would not have been obvious at all from these earlier documents and that the Examiner is engaging in an impermissible retrospective analysis.

Another aspect is that the present invention describes a separation unit where NO_x are selectively separated from the exhaust gas mixture. To achieve such a separation, the separation unit comprises a wall made of zeolite material. The separation in the present invention is based on a complex interaction of various factors, for instance the fact that some components in the exhaust gas mixture have size and polarity suitable for said components to pass through the wall. The membrane in Aine, on the other hand, lets through the components that are soluble in the membrane material, i.e., that have high absorption energy. The separation is thus based on partition and on the fact that different components in the exhaust gas mixture have different lipophilicity. These separation techniques are quite different, and should a person skilled in the art face the problem of separation of NO_x from the exhaust gas mixture, he would likely try to modify the membrane material of Aine to selectively let through NO_x rather than trying to apply different separation techniques.

In order to provide better clarity to the claims, Applicants have rearranged claims 1 and 11 slightly to provide these claims with more structure. In particular, Applicants define that detection of an amount of the oxide of nitrogen is used for controlling the amount of gas component which is present in the exhaust gas flow, as supported at page 13, lines 4-11 of the application in that the NO_x sensor is utilized to control the amount of reducing agent which is supplied for controlling a portion of NO_x output from the exhaust while economizing on the reducing agent.

In view of the foregoing as well as the previous Remarks, Applicants submit that all

pending claims are in condition for allowance, and timely Notice to that effect is respectfully requested.

The undersigned representative requests any extension of time that may be deemed necessary to further the prosecution of this application.

The undersigned representative authorizes the Commissioner to charge any additional fees under 37 C.F.R. 1.16 or 1.17 that may be required, or credit any overpayment, to Deposit Account No. 14-1437, referencing Attorney Docket No.: 0173.019.PCUS00.

In order to facilitate the resolution of any issues or questions presented by this paper, the Examiner may directly contact the undersigned by phone to further the discussion.

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Respectfully submitted,

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